

CP/M

HiSoft C

42.95
+ VAT

A Fast, Interactive Version of the Popular C Language

HiSoft C for the Amstrad CPC and PCW computers is supplied either on cassette or disc. The cassette version runs on the CPC computers, works with the firmware and includes extra libraries to call the operating system; HiSoft C on disc includes versions to work under the native operating system, AMSDOS, and CP/M. A GSX graphics library is supplied to work on the CP/M Plus (CPC6128 and PCW8256/8512) computers.

HiSoft C performs extremely quickly both in terms of compilation and the overall development cycle; on detecting a compilation error you can enter the editor on the rogue line, correct the error and resume compilation automatically. The CP/M version is supplied with a special, interactive version of our screen editor ED80.

HiSoft C has sophisticated UNIX standard I/O features like random-access files and both binary and text access modes.

```
do statement while (expression)
while (expression) statement
if (expression) statement else statement
switch (expression) statement
case expression: default:
for (initial_expression; test_expression;
    loop_expression) statement
break; continue; return expression;
label: goto label;
(compound_statement) inline (machine_code);
```

data types:

char (8 bits)
int (16 bits) unsigned (16 bits)
short, long are accepted as int
float, double are not available
pointers, functions, multi-dimensional arrays
structures, unions, typedef
extern, static, auto
combinations of the above, as in Kernighan
& Ritchie, with full checks
initializers for global and static variables

HiSoft C also provides command line handling for your programs, including I/O redirection (for <input> output and >> appending).

C is a very flexible language which combines high-level structured features for both algorithms and data together with low-level access that allows direct control over the machine. The HiSoft compiler supports both of these important abilities.

This means that programs can take full advantage of the computer's environment (thus enabling fast and compact execution) while being easy to write and debug.

Most of the leading software houses now write in C (e.g. Digital Research's GEM) and the C language is set to become the standard on the next generation of computers.

The C language was designed and used at Bell Labs in the U.S.A. to write the Unix operating system. The language is detailed in "The C Programming Language" by Kernighan and Ritchie and this is the basis for the HiSoft compiler. The compiler supports:

expressions:

```
- += -- *= /= %>= <= &= ^= |=
?: || && ^ &
~ !- <= >= < >
<< >> + - * / %
* & - ! - ++ __ sizeof type_cast
() [] () . ->
```

strings, characters
decimal, hex, octal constants

compile-time evaluation of constant expressions.

HiSoft C

Selective library search is one feature of the pre-processor. It allows a source file to be scanned and just those functions which are actually needed are compiled into the program. Other preprocessor/compiler control features include:

```
# define macros (with no parameters)
# include file
# include ?file? (gives library search)
# translate (to change the name of
               the compiled program)
# list (to turn listing off & on)
# data (sets top of memory for
        global data, CP/M only)
# error (removes explanatory error
        messages to give more
        room for your program)
# direct (for immediate execution
         or building up a program,
         AMSDOS only)
```

The compiler is supplied with a library of standard functions based on those found in a Unix environment, and other libraries designed to make maximum use of the Amstrad computers in a way that will be familiar to all users.

Some basic functions are built-in for efficiency whilst the rest are provided as C source code. This has three advantages - functions that aren't needed don't take valuable memory, the library provides examples of C programs doing a variety of jobs, and they can be modified to suit your exact needs.

There are CP/M, firmware and CPC BASIC libraries containing the following functions:

input/output

```
getchar putchar keyhit fopen getc ungetc putc fclose rawin rawout gets
puts getw* putw* printf sprintf fprintf scanf sscanf fscanf fgets fputs
fread* fwrite* fname* seek* tell* read* write* fsetbuf* fflush* freopen
```

strings

```
strcat strncat strcmp strncmp strcpy strncpy
strlen strchr strrchr strpbrk strspn strcspn
```

characters

```
isalnum isalpha isascii iscntrl isdigit isgraph islower isprint
ispunct isspace isupper isxdigit tolower toupper toascii
```

arithmetic

```
min max abs sign srand rand long_multiply(32 bit) long_add long_init long_set long_copy
```

miscellaneous

```
peek poke inp out qsort calloc free sbrk atoi _exit exit blt swap (memory)
```

Special CP/M functions*

```
cpm_bdos cpm2_bios cpm3_bios cpm_dir read_file write_file instr itob strlower strupper
```

Special non-CP/M functions§

```
after beep every add_ticker init_event cass_speed border catalog cls draw
event_disable event_enable flash_speed ink inkey instr itob joy
key_function key_speed key_translation line paper play plot
time read_file setup_sound sound_check strlower strupper symbol symbol_after
```

plus 30 of the most useful sound and graphic firmware calls.

* available on CP/M version only § available on non-CP/M version only

HiSoft C comes with a substantial 160 page manual in a quality ring binder. There are numerous examples of every part of the language and complete programs to try out. For the expert, there is a detailed point-by-point comparison with UNIX C. The manual contains a full guide to C so there is no necessity for a separate textbook. Each element of the language is listed in the comprehensive contents, as are each of the

library functions. When the compiler finds an error it displays an informative English message; and there is more help in the manual about why the message occurred and how to fix it. A checklist of common C mistakes is also included.

We think that, whether you are a newcomer to C or a seasoned expert, HiSoft C will permanently change the way you use your Amstrad computer.